UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,794	02/04/2001	Huy Thatminh Ton	84813	1595

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EXAMINER
TANG, KENNETH

ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2002*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/1/02*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-24 are presented for examination.

Claim Objections

2.   Claim 4 is objected to because it depends on itself, and is therefore, improper.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5.   Claims 1-10 are directed to method steps which can be practiced mentally in conjunction with pen and paper, therefore they are directed to non-statutory subject matter. Specifically, as claimed, it is uncertain what performs each of the claimed method steps. The examiner suggests applicant to change "method" to "computer implemented methods" in the preamble to overcome the outstanding 35 U.S.C. 101 rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a.   The following claim languages are indefinite:

i.   In claim 1, "indicating for each of a plurality of resources an allocated semaphore" is indefinite because it is not made explicitly clear in the claim language what the indication consists of. For example, it is unclear whether this entails whether there exists an allocated semaphore in the resource or if the resource is available (or not) to be allocated, etc. A structural relationship was not established between the "indication of the first semaphore" (line 8) and the "resources is available" (line 7).

ii.   Claim 11 is indefinite because it is unclear whether it is a method claim or a computer-readable medium claim. It is required that claim 11 be amended in the form of an independent claim.

iii.   Claim 12 is rejected for the same reasons as stated in the rejection of claim 1 above.

iv.   In claim 17, "request for access" in line 7 is indefinite because it is not made explicitly clear where this is coming from. It is unclear who or what is requesting for access.

v.   In claims 18 and 21, "set of associations between the plurality of resources and the plurality of semaphores" is indefinite because it is not made explicitly clear in the claim language whether one resource is associated to one or particular semaphore or if a resource is associated to various semaphores, for example.

b.   Claim 1 recites the limitation "the first resources" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Perks in view of George et al. (hereinafter George) (US 4,965,718).

5.   As to claim 1, Perks teaches a method comprising:

maintaining a data structure indicating for each of a plurality of resources an

allocated semaphore *(col. 2, lines 54-56, col. 4, lines 35-36, col. 6, lines 4-6)*;

receiving a request to access a first resource from a first task *(col. 4, lines 57-60)*;

6.   Perks teaches allocating a semaphore when the resource is available and updating

(modifying) the data structure with the first resource but fails to explicitly teach signaling

to the first task that the first request is available. However, George teaches notifying

(signaling) the requesting processing element via the interconnections means if the

resource is available *(see Abstract and col. 2, lines 58-68)*. It would have been obvious

to one of ordinary skill in the art at the time the invention was made to include the feature

of signaling the first task as being available in order to increase the efficiency of the

system by providing synchronization of the processes *(col. 1,lines 41-50)*.

7.   As to claim 2, George teaches wherein said determining that the first resource is available includes checking the data structure for an indication of the first resource *(see Abstract and col. 2, lines 58-68)*.

8.   As to claim 3, Perks teaches wherein maintaining a current access type for each of the plurality of resources *(col. 1, lines 25-34)*.

9.   As to claim 4, George teaches wherein said determining that the first resource is available includes finding an indication of the first resource and an associated current access type of read in the data structure, and recognizing that the request corresponds to a read request *(see Abstract and col. 2, lines 58-68)*.

10.   As to claim 5, George teaches receiving a second request to access the first resource from a second task; referencing the data structure to determine that the first resource is currently not available, and signaling to the second task that the first resource is not available *(see Abstract and col. 2, lines 58-68, col. 3, lines 1-9)*.

11.   As to claim 6, George teaches comprising receiving a second request to access the first resource from a second task; referencing the data structure to determine that the first resource is currently read-locked, recognizing that the second request corresponds to a read access request; and signaling to the second task that the first resource is available *(see Abstract and col. 2, lines 58-68, col. 3, lines 1-9)*.

12.   As to claim 7, George teaches receiving a second request to access the first

resource from a second task; referencing the data structure to determine that the first

resource is currently read-locked, recognizing that the second request corresponds to a

write access request; and signaling to the second task that the first resource is not

available *(see Abstract and col. 2, lines 58-68, col. 3, lines 1-9)*.

13.   As to claim 8, George teaches receiving a second request to access the first

resource from a second task; referencing the data structure to determine that the data

structure to determine that the first resource is currently write-locked, and signaling to the

second task that the first resource is not available *(see Abstract and col. 2, lines 58-68,*

col. 3, lines 1-9).

14.   As to claim 9, Perks teaches receiving a second request to access the first resource

from a second task, the second request, including a request timeout value *(col. 4, lines*

57-60); George teaches referencing the data structure to determine that the first resource

is currently not available, queuing the second request, the first task releasing the first

resource within a timeframe corresponding to the timeout value, and signaling to the

second task that the first resource is available *(see Abstract and col. 2, lines 58-68, col. 3,*

lines 1-9, and claim 2).

15.   As to claim 10, Perks teaches receiving a second request to access the first

resource from a second task, the second request, including a request timeout value *(col. 4,*

lines 57-60); referencing the data structure to determine that the first resource is currently

not available, queuing the second request, expiring the second request based on the

timeout value, and signaling to the second task that the first resource is not available *(col.*

63, lines 64-68, col. 64, lines 1-8 and 64-68, and col. 65, lines 1-8).

16.   As to claim 11, it is rejected for the same reasons as stated in the rejection of

claim 1.

17.   As to claim 12, Perks teaches a computer-readable medium containing

computer-executable instructions for:

        maintaining a data structure indicating for each of a plurality of resources all

allocated semaphore *(col. 2, lines 54-56, col. 4, lines 35-36, col. 6, lines 4-6)*;

        receiving a first request to access a resource *(col. 4, lines 57-60)*;

Perks teaches allocating a semaphore when the resource is available and updating

(modifying) the data structure with the first resource and an indication (flag variable) of a

first semaphore *(col. 1, lines 20-34)*, but fails to explicitly teach receiving a second

request to access the resource and after determining whether or not that first resource is

available, allocating a second resource, and updating the data structure with the second

semaphore. However, George teaches checking to see if a resource is available and

updating of a data structure in the resource and done with signals used to communicate

event occurrences *(claim 1, col. 2, lines 58-68, col. 3, lines 1-9, col. 5, lines 10-36,*

Abstract). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include the feature receiving a second request to access the

resource and after determining whether or not that first resource is available, allocating a

second resource, and updating the data structure with the second semaphore to the

existing system of Perks in order for the process to keep going and continue for the next

request.

18.   As to claim 13, George teaches updating, after receiving a release request for the

resource, the data structure to remove the indication of the first semaphore and to indicate

that the resource is allocated with the second semaphore *(claim 1, col. 2, lines 58-68, col.*

3, lines 1-9, col. 5, lines 10-36, Abstract).

19.   As to claim 14, it is rejected for the same reasons as stated in the rejection of

claim 6.

20.   As to claim 15, it is rejected for the same reasons as stated in the rejection of

claim 8.

21.   As to claim 16, it is rejected for the same obvious reasons as stated in the

rejection of claim 12 (reasons for a third request the same as reasons for the second

request).

22.   As to claim 17, Perks teaches a dynamic semaphore management system *(col. 2,*

lines 54-56, col. 4, lines 35-36, col. 6, lines 4-6) comprising:

a communications mechanism to receive a request for access to a particular

resource of a plurality of resources and to signal allowance or denial (flag variable) of

access to the particular resource (process interlocking) *(col. 1, lines 25-34)*;

a plurality of semaphores *(col. 2, lines 43-50 and see Abstract)*; and

a semaphore manager to maintain a set of associations between the plurality of

resources and the plurality of semaphores *(col. 1, lines 20-34 and col. 2, lines 43-45)*.

23.   Perks teaches allocating a semaphore when the resource is available and updating

(modifying) the data structure with the first resource but fails to explicitly teach signaling

to the first task that the first request is available. However, George teaches notifying

(signaling) the requesting processing element via the interconnections means if the

resource is available *(see Abstract and col. 2, lines 58-68)*. It would have been obvious

to one of ordinary skill in the art at the time the invention was made to include the feature

of signaling the first task as being available in order to increase the efficiecy of the

system by providing synchronization of the processes *(col. 1, lines 41-50)*.

24.   As to claim 18, Perks teaches wherein the semaphore manager includes a data

structure to maintain the set of associations between the plurality of resources and the

plurality of semaphores *(col. 2, lines 44-60, col. 4, line 52)*.

25.   As to claim 19, Perks teaches wherein the data structure includes a resource lock

table and a semaphore table *(col. 5, lines 12-19 and col. 6, lines 55-67)*.

26.   As to claim 20, Perks teaches wherein the semaphore manager includes an

application programming interface *(col. 7, lines 22-26)*.

27.   As to claim 21, Perk teaches a dynamic semaphore management system *(col. 2,*

lines 54-56, col. 4, lines 35-36, col. 6, lines 4-6) comprising:

        means for maintaining a set of associations between a plurality of resources and a

plurality of semaphores *(col. 4, lines 64-67 through col. 5, lines 1-6)*;

        means for receiving a request for access to a particular resource *(col. 4, lines 57-*

60);

        means for dynamically allocating a semaphore for the particular resource; and

        means for allowing or denying access (flag variable and process interlocking) to

the particular resource *(col. 1, lines 25-34)*.

28.   Perks teaches allocating a semaphore when the resource is available and updating

(modifying) the data structure with the first resource but fails to explicitly teach signaling

to the first task that the first request is available. However, George teaches notifying

(signaling) the requesting processing element via the interconnections means if the

resource is available *(see Abstract and col. 2, lines 58-68)*. It would have been obvious

to one of ordinary skill in the art at the time the invention was made to include the feature

of signaling the first task as being available in order to increase the efficiency of the

system by providing synchronization of the processes *(col. 1, lines 41-50)*.

29.   As to claim 22, Perks teaches said means for maintaining the set of associations

includes means for maintaining a resource lock table and means for maintaining a

semaphore table *(col. 5, lines 12-19 and col. 6, lines 55-67)*.

30.   As to claim 23, Perks teaches means for dynamically de-allocating the semaphore

(col. 4, lines 58-60, col. 5, lines 1-6).

31.   As to claim 24, Perks teaches means for receiving a second request for the

particular resource and means for determining the availability of the particular request

(col. 1, lines 20-34 and col. 4, lines 57-60).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-

3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday

off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

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Center (EBC) at 866-217-9197 (toll-free).

Kt
8/20/04

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